

REMARKS

Favorable reconsideration and allowance of the claims of the present application are respectfully requested.

Applicants have amended claims 1, 2, 5-7, and 9-21, and added new claims 23-26. Claim 22 remains cancelled. No new matter has been added. Accordingly, claims 1-21 and 23-26 are pending.

In the Office Action, the Examiner rejected claims 1-21 as allegedly indefinite under 35 U.S.C. § 112, second paragraph. Specifically, the Examiner rejected claims 1 and 9 alleging that the phrase "its electronic excitation" is unclear. The Examiner rejected claim 2 for use of the phrase "the same anion". The Examiner rejected claims 5, 6, 7, 10, 18, and 21 for use of indefinite terms, such as "preferably" and "e.g.". The Examiner rejected claims 12-14 for being indefinite for reciting that a shell is formed around luminescent "nanoparticles".

Responsive to the 112 rejections noted above, the following amendments were made. Claims 1 and 9 have been amended by removing the phrase "its electronic excitation" and replacing that phrase with the phrase "after electronic excitation of the core" at the end of the claim for clarification. Claim 2 has been amended to remove the phrase "the same anion". Claims 5, 6, 7, 10, 18, and 21 were amended by removing the indicated terms. New claims 23-26 have been added which include subject matter present in original Claims 18, 20 and 21. Claims 12-14 have been amended by replacing "nanoparticles" with "nanoparticle cores".

In view of the above amendments, the 35 U.S.C. § 112 rejections have been obviated. Accordingly, Applicants respectfully request that the foregoing rejections under 35 U.S.C. § 112 be withdrawn.

The Examiner also rejected claims 1-4 as allegedly anticipated under 35 U.S.C. § 102(b) in view of U.S. Patent No. 5,985,173 to Gray et al. Applicants respectfully disagree that Gray et al. anticipates the present claims. In particular, Gray et al. do not disclose a core containing a metal salt selected from phosphates, sulfates, or fluorides, as specified by claim 1. As shown in col. 2, lines 35-42, col. 3, lines 20-25, col. 4, lines 43-55, and col. 6, lines 9-29 of Gray et al., the cores disclosed in Gray et al. are limited to semiconductor compounds. As is well known in the art, and as copiously exemplified in the indicated passages of Gray et al., semiconductor compounds do not include metal salts of phosphates, sulfates, or fluorides. The examples provided in Gray et al. for the core are limited to oxide and sulfide materials (for example, zinc sulfide (ZnS), zinc oxide (ZnO), and cadmium sulfide (CdS)). Furthermore, the instant filed application (e.g., pages 1, fourth paragraph to page 2, first paragraph, and page 5, lines 1-3) discussed the drawbacks of semiconductor materials as well as the advantage in using non-semiconductor-based luminescent materials.

Accordingly, the pending claims are not anticipated by Gray et al., and thus, the § 102(b) rejection is obviated. Accordingly, Applicants respectfully request that the foregoing rejection under 35 U.S.C. § 102(b) be withdrawn.

The Examiner has also rejected claims 5-10 and 19-21 under 35 U.S.C. § 103(a) in view of Gray et al. in further view of i) Japanese Publication 01-318,078 ("JP '078"), ii) Japanese Publication 11-043,669 ("JP '669"), and iii) Japanese Publication 05-251,008 ("JP '008"). The Examiner considers Gray et al. to teach the core-shell luminescent nanoparticles of claim 1, while the Japanese publications cited above are relied upon to teach specific compositions either in the core or shell of the claimed nanoparticles. As already indicated hereinabove, Gray et al. do

not teach or suggest the core-shell luminescent nanoparticles of the present claims. Moreover, the deficiencies of Gray et al. discussed above are not compensated in any way by any of the Japanese publications. None of the above Japanese publications teach or suggest core-shell luminescent nanoparticles as delineated by the present claims.

Accordingly, the combination of Gray et al. with any one or more of the cited Japanese publications is similarly deficient, and hence, do not render the claims obvious over them. Thus, in view of the above, this rejection under 35 U.S.C. §103(a) is obviated and withdrawal thereof is respectfully requested.

The Examiner has also rejected claims 11-18 under 35 U.S.C. § 103(a) in view of Gray et al. in further view of German Patent DE 101 31 173 ("DE '173"). The Examiner considers Gray et al. to teach the core-shell luminescent nanoparticles of claim 1, while DE '173 is relied upon to allegedly teach the method according to claims 11-18 for preparing the core-shell luminescent nanoparticles. However, as already indicated hereinabove, Gray et al. do not teach or suggest the core-shell luminescent nanoparticles of the present claims. DE '173 also do not teach or suggest the core-shell luminescent nanoparticles of the present claims. Therefore, based on this alone, the combination of Gray et al. and DE '173 does not teach or suggest the method of claims 11-18.

Furthermore, DE '173 does not teach or suggest the steps recited in claims 11-18. For example, DE '173 does not teach: i) preparing a first mixture containing luminescent metal sulfate, phosphate, or fluoride nanoparticle cores in an organic medium, and ii) reacting this mixture, along with an anion source for the shell, and a second mixture containing shell-forming metal ions and an organic metal complexing agent, at a temperature of 50 to 350°C until a shell has formed around the luminescent nanoparticle cores.

Moreover, prior to the claimed invention, it was not known how nanoparticles of the claimed core-shell luminescent nanoparticles could be made. The process for synthesizing the claimed luminescent nanoparticles is far from trivial since numerous difficulties needed to be overcome to devise a suitable synthesis according to claims 11-18. For example, the synthetic technique had to be capable of producing core particles of nanoscale dimensions; suitable reactants had to be found that were capable of forming a shell on the nanosized core particles; the synthetic method had to be designed such that shell reactants would grow a shell around the nanosized core particles without separately forming new particles; and the method needed to control the growth of the produced core-shell nanoparticles. The process recited in claims 11-18 overcomes each of the hurdles enumerated above. In contrast, the processes disclosed in DE '173 (e.g., in Examples 1 and 2 therein) are incapable of overcoming the hurdles enumerated above, and are thus, not applicable for synthesis of the nanoparticles according to the instant claims.

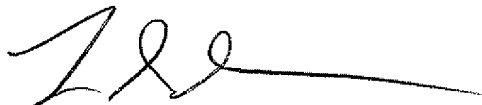
For all the reasons provided, Applicants consider the claims, as amended, to be patentable. Accordingly, allowance of the pending claims is earnestly requested.

For the record, Applicants assert that all amendments to the claims were made solely to overcome the above 112 rejections. None of the amendments to the claims were made to overcome rejections based on art cited by the Examiner.

Applicants hereby submit that the present application is now entitled to small entity status.

If the Examiner has any questions or other concerns regarding this response and amendment, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Leslie S. Szivos', with a long horizontal flourish extending to the right.

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